PROJECT TITLE : CIGARETTE DEVELOPMENT 2

PERIOD COVERED : SEPTEMBER 29 - NOVEMBER 26, 1981

WRITTEN BY : Frattolillo-A. (ANF)

---

400 COMMONWEALTH 4
420 COMMONWEALTH 9

This report summarizes the results and some of the events leading to the test program which took place at FTR during the period of the 5th to the 16th of October 1981.
The tests were witnessed by J. Etheridge, M. Evans, J.-P. Fatton, Z. Singer and A. Stathopoulos and myself.
They will actively participate in the development and evaluation of the test results concerning the proposed objective.

Objective

The development of two Virginia cigarettes delivering 4 and 9 mg UK tar, to compete with UK'S 9 mg SILK-CUT and 17 mg B & H respectively.

Description of samples and results

Samples made prior to this date were evaluated and new prototypes were produced based on these evaluations.
It was the opinion of all the participants that for the achievement of the objective and the accomplishment of the project, qualitative and quantitative improvements in the smoke were necessary.

For the task, two tobacco blends were established and filed under :

1) COMMONWEALTH 4 No GB1040002NO2, batch No 949

2) COMMONWEALTH 9 No GB1042003NO2, batch No 950

The above-mentioned blends were later incorporated in cigarettes of different designs having a format of :

7.95 mm diameter

20/25 mm filter length

84.4 mm cigarette total length

A general view of the produced cigarette prototypes, with the construction materials used, is given in the attached flow-charts.

Φ0001423976

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

Tobacco strips

The strips of the chosen tobacco grades, making up the blends, were preconditioned in the vacu-dyne for ca. 30 min. The strips having left the vacu-dyne at ca. 70 °C and 16 % H_2O content were then fed through the conditioning cylinder for addition of H_2O under the action of steam, prior to entering the blending box. From the blending box, the strips, at ca. 19 % H_2O content, were conveyed to the cutter previously adjusted to give a cut-size of ca. 0.7 mm (36 ci.).
Thereafter, the cut-rag, with the addition of improved CRS (cut-rolled-stems), passed through the dryer and at the exit had ca. 15 % H_2O content.

Tobacco stems

The blend of the whole stems passed through the inclined screw conveyor-conditioning system and then through the flattening-rollers set at +/- 0.2 mm clearance, then entered the cutter with ca. 32 % H_2O content.
The cutter, on the stem-line, was adjusted to give a cut-size of ca. 0.17 mm (149 ci.). From there it passed into the superwetting cylinder where the moisture level of the CRS rose to ca. 47 %. At this moisture, the CRS were bulked for a period of 45 min. to help the surface H_2O completely penetrate the strands.
After leaving the bulking-box, the CRS were fed through the gas roasting system and upon exit they had ca. 19 % H_2O content. At this moisture, the improved CRS were incorporated into the cut-rag before entering the final dryer.
The finished cut-fillers, with additions of ET at two different levels, had an average of 14.8 % moisture content.
In the preparation and processing of all the blend components, special attention was given to the temperature and moisture levels at the various processing steps as such blends did not include casings nor PC ingredients.

2000143977

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

COMMONWEALTH 4 : The blend : 38 % FC (US)
27 % FC
25 % ET
10 % St

The cut-filler derived from the above formula and filed under No GB1040002NO2 was split into two aliquots, one of which was separately treated with AC-95-E. Therefore, with the above blend, unflavoured cigarettes (version A) and flavoured ones (version B) were produced, analyzed and taste tested.
Among the many prototypes tested, the ones hereunder described were chosen for their positive physical and organoleptic characteristics.

PROTOTYPE NO		36 P	42 P
Batch No		949	949
Version		A	B
CUT-FILLER			
TA	%	2.26	2.25
RS	%	13.4	14.3
$N-NO_3$	%	0.03	0.03
CIGARETTE			
Format : Diameter	mm	7.95	7.95
Filter length	mm	25	25
Total length	mm	84.4	84.4
Filter type		2.5 Y / 40	2.5 Y / 40
Cigarette paper		Mauduit 110-6 / CP ------	
Plug wrap		FU-POV 100	FU-POV 100
Total weight	mg/cig.	976	981
Tobacco weight	mg/cig.	724	724
Total RTD	mm WG	81	80
Filter RTD	mm WG	85	84
Dilution	%	63	62
Compressibility at 12 % M		3.63	3.15
Filler density at 12 % M	mg/ml	242	243
SMOKE			
DPM	mg/cig.	5.3	5.7
SN	mg/cig.	0.52	0.54
Tar	mg/cig.	4.8	5.2
CO	mg/cig.	4.3	4.2
NO	mg/cig.	0.03	0.03
Puff count		10.7	10.3

0001143978

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

COMMONWEALTH 9 : The blend : 42 % FC (US)
33 % FC
10 % ET
15 % St

The cut-filler derived from the above formula and filed under No GB1042003NO2 was split into two aliquots, one of which was separately treated with AC-95-E. Therefore, with the above blend, unflavoured cigarettes (version A) and flavoured ones (version B) were produced, analyzed and taste tested.
Among the many prototypes tested, the ones hereunder described were chosen for their positive physical and organoleptic characteristics.

PROTOTYPE NO		40 P	52 P	54 P
Batch No		950	950	950
Version		A	B	B
CUT-FILLER				
TA	%	2.30	2.20	2.26
RS	%	14.0	13.8	14.3
$N-NO_3$	%	0.03	0.03	0.03
CIGARETTE				
Format : Diameter	mm	7.95	7.95	7.95
Filter length	mm	25	25	25
Total length	mm	84.4	84.4	84.4
Filter type		2.5 Y / 48 ---		2.5 Y / 40
Cigarette paper		Mauduit 110-6 / CP ----------		
Plug wrap		FU-POV 40 ----		FU-POV 100
Total weight	mg/cig.	1013	1012	1003
Tobacco weight	mg/cig.	745	745	748
Total RTD	mm WG	108	113	94
Filter RTD	mm WG	101	95	88
Dilution	%	34	35	44
Compressibility at 12 % M		3.71	3.29	3.61
Filler density at 12 % M	mg/ml	248	251	251
SMOKE				
DPM	mg/cig.	9.7	10.2	9.2
SN	mg/cig.	0.95	0.98	0.88
Tar	mg/cig.	8.75	9.2	8.3
CO	mg/cig.	10.4	9.5	8.3
NO	mg/cig.	0.03	0.05	0.05
Puff count		9.0	10.0	9.8

2000143979

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

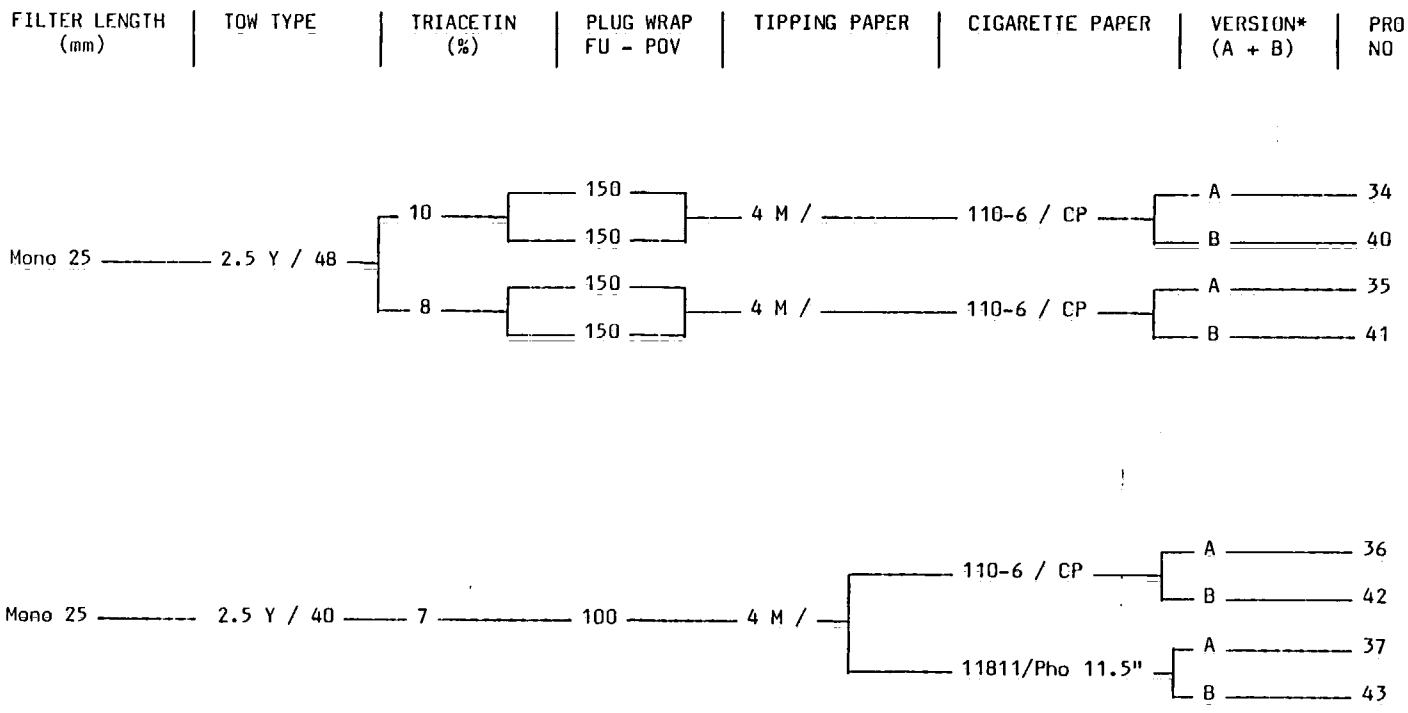
Comments

Additional work will be carried out using different filters. COMMONWEALTH 4 in particular was found to be slightly lacking in mouth response. Meanwhile, a screening panel test is under way in the UK with the three chosen prototypes of COMMONWEALTH 9 vs. B & H and the two prototypes of COMMONWEALTH 4 being tested against each other.

00014398O

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

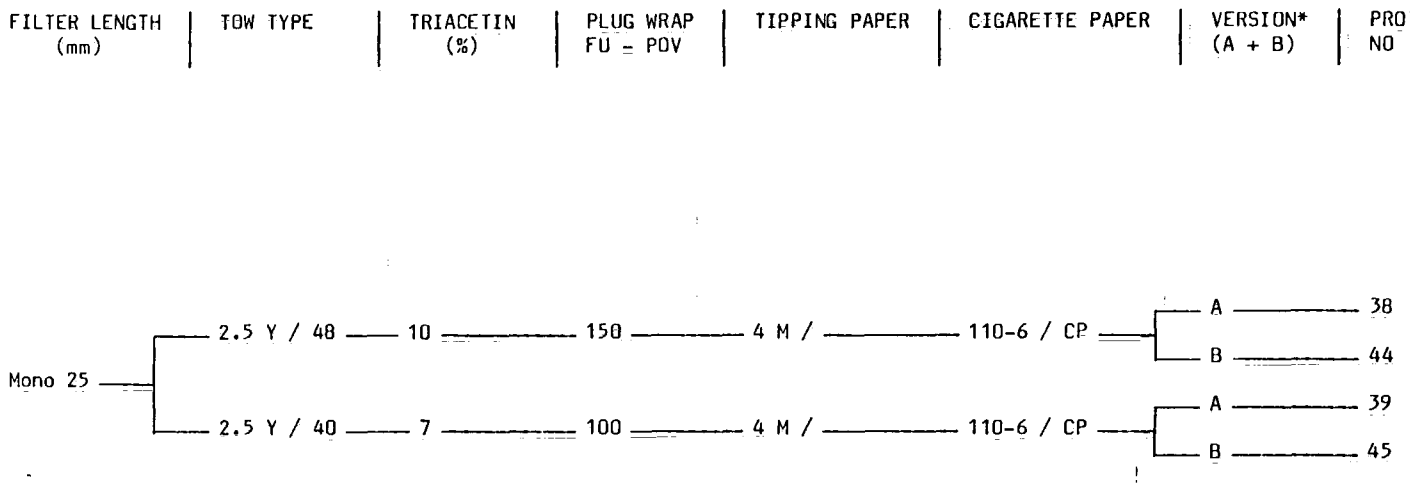
COMMONWEALTH 4 - FLOW-CHART OF PROTOTYPES PRODUCED INCORPORATING TOBACCO BLEND NO GB1040002NO2, BATCH 950



* : Version A = Unflavoured
Version B = Flavoured

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

COMMONWEALTH 4 - FLOW-CHART OF PROTOTYPES PRODUCED INCORPORATING TOBACCO BLEND NO GB1042003N02, BATCH 949

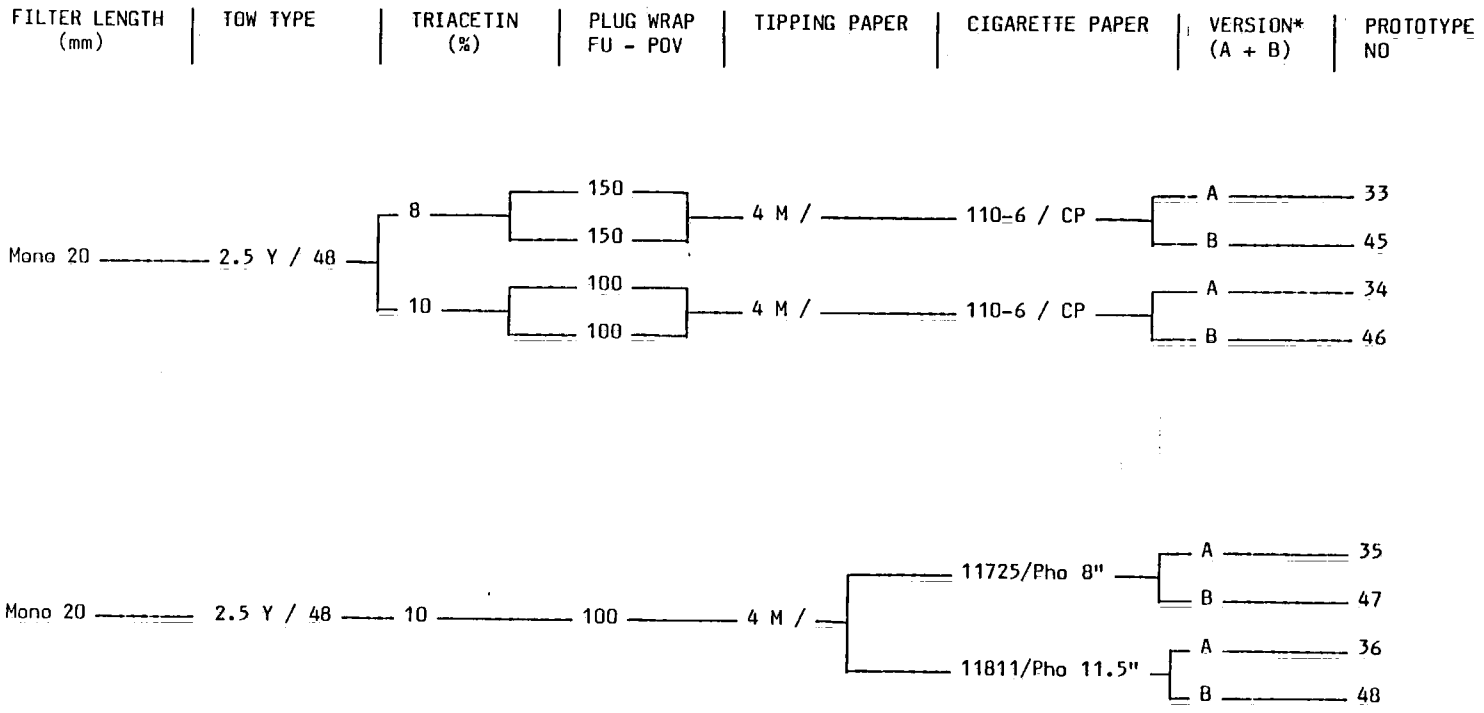


* : Version A = Unflavoured
Version B = Flavoured

B0001439B2

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

COMMONWEALTH 9 - FLOW-CHART OF PROTOTYPES PRODUCED INCORPORATING TOBACCO BLEND NO GB1042003NO2, BATCH 949

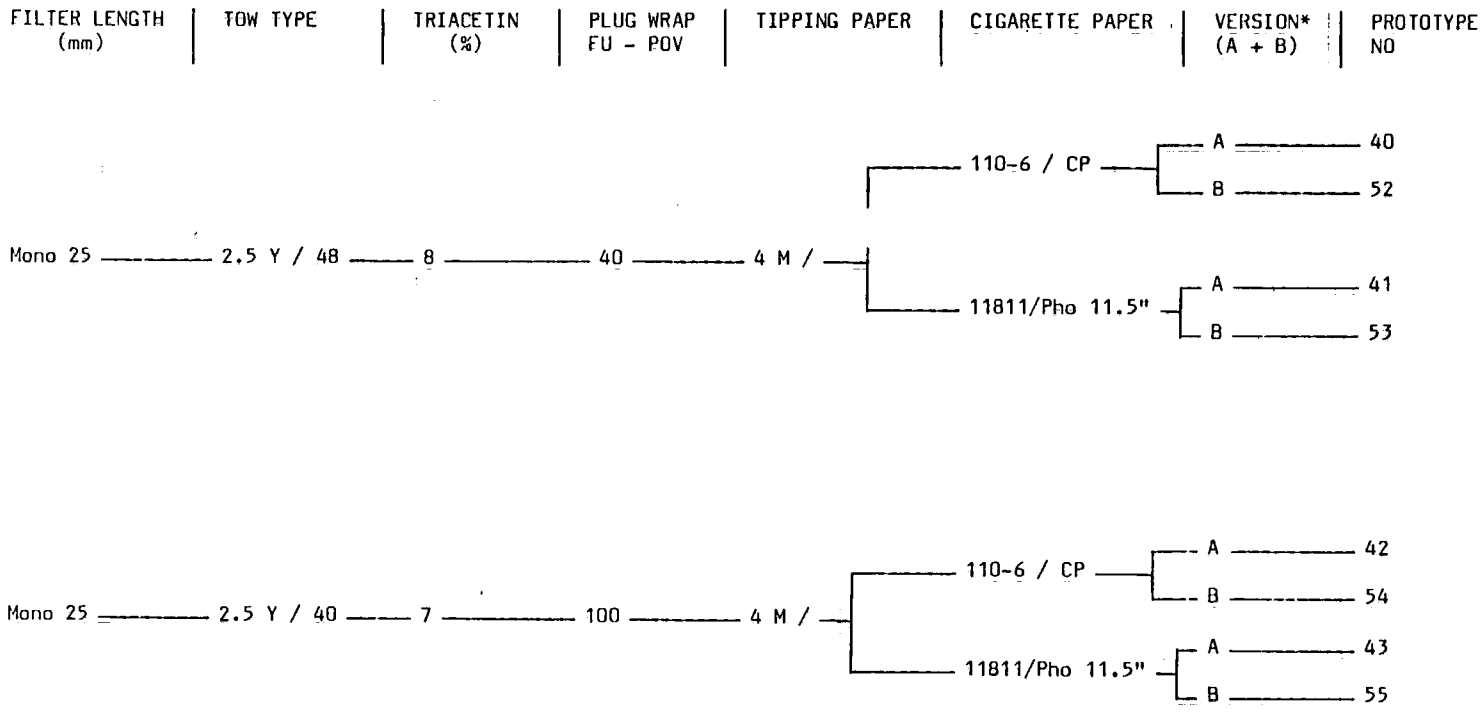


* : Version A = Unflavoured
Version B = Flavoured

10001433983

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

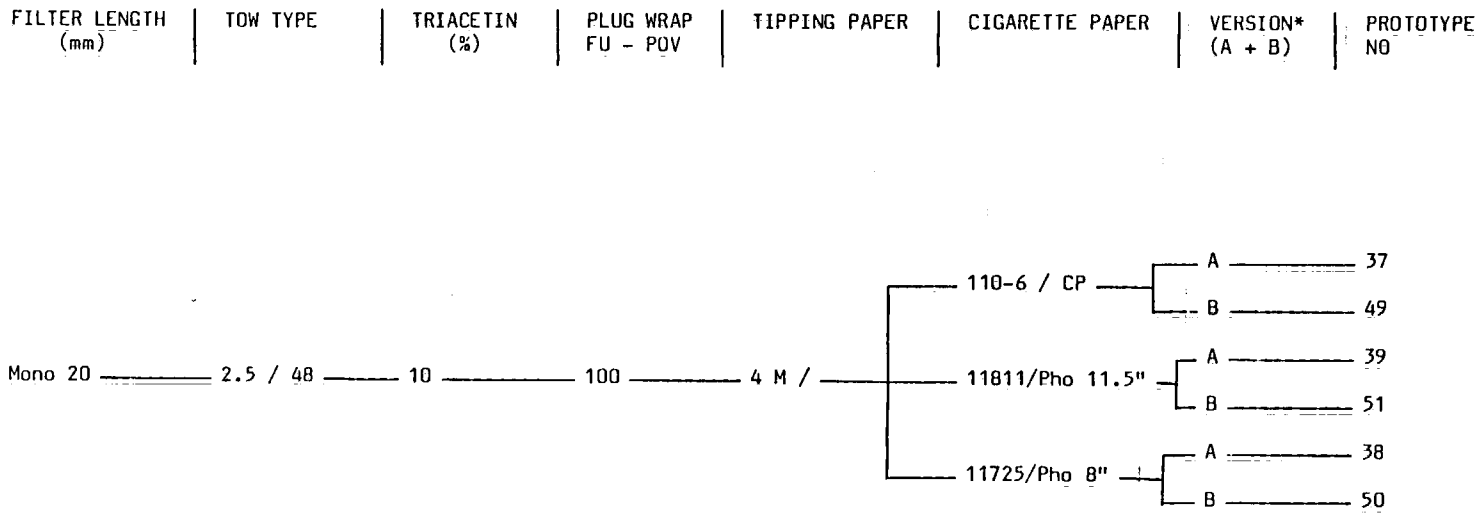
COMMONWEALTH 9 - FLOW-CHART OF PROTOTYPES PRODUCED INCORPORATING TOBACCO BLEND NO GB1042003N02, BATCH 949



* : Version A = Unflavoured
Version B = Flavoured

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

COMMONWEALTH 9 - FLOW-CHART OF PROTOTYPES PRODUCED INCORPORATING TOBACCO BLEND NO GB1040002N02, BATCH 950



* : Version A = Unflavoured
Version B = Flavoured

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

208 TENNIS 23 UK

Objective

To develop a diluted MARLBORO cigarette by performing intermediary steps and achieve the quality of the Pan-European cigarette by using a special flavour system on tobacco only. This would eliminate the use of flavoured filters and still conform to the Hunter list.

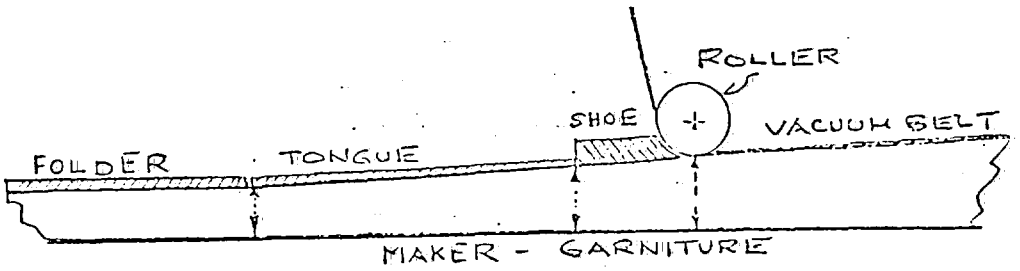
Description of samples and results

Cigarette prototype 23, developed at FTR using tobacco blend No GB0120803N02, was accepted by Panel A Lausanne and UK Marketing.
On a later date, this prototype was given to be reproduced at PMH, in Bergen op Zoom, the latter being planned as the future production center for the UK market.
Following the specifications supplied by FTR, prototype 23 was produced at PMH and sent to FTR for complete evaluation. The results obtained showed lower physical qualities than those produced at FTR, ie. tobacco compressibility and cigarette loose ends. This was probably due to :

a) greater fluctuations in temperature and moisture outputs during tobacco processing that negatively affected the quality of the cut-filler.

b) the contribution of the quality of ESTHER to the cut-filler.

c) the maker garniture, ie. the adjustment of the transfer section of tobacco from the vacuum belt to the folder belt, under the shoe into the tongue, to gradually compress the tobacco stream to just about the same height it would have at the exit of the tongue. This would not only reduce the dense float, but would also help to reduce soft spots in the rod (see the sketch below).



0001143986

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

We did not have enough time to check into the above-mentioned points. Therefore, we suggested reproducing prototype 23 at four different tobacco weights. This helped to obtain, in a relatively short time, cigarettes of good physical qualities in the class of 789 mg tobacco weight (1020 mg total cigarette weight), delivering taste and analytical values within the objective.
The following is an up-dated summary of the results obtained on TENNIS 23 produced at BTR and those produced at PMH.

0001439B7

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

PRODUCTION DATE		SEPT. 1980 (FTR)	FEB. 1981 (FTR)	OCT. 1981 (FTR)	NOV. 1981 (FTR)	OCT. 1981 (PMH)
PROTOTYPE NO		23 P	23 C	23 T	REPEAT (23 T)	MLB-03
VERSION		B	B	B	B	B
CUT-FILLER						
TA	%	2.03	2.09	1.95	1.87	1.96
RS	%	10.3	11.3	10.4	10.4	11.1
$N\text{-}NO_3$	%	0.18	0.15	0.17	0.16	0.16
CIGARETTE FORMAT						
DIAMETER	mm	7.97	7.97	7.97	7.97	7.97
FILTER LENGTH	mm	20	20	20	20	20
CIGARETTE TOTAL LENGTH	mm	84.4	84.4	84.4	84.4	84.4
CIGARETTE						
FILTER TYPE		3.4 I / 46	3.4 I / 46	3.4 I / 46	3.4 I / 46	3.4 I / 46
CIGARETTE PAPER		WATTENS 60	WATTENS 60	WATTENS 60	WATTENS 60	110-6
TIPPING PAPER		Z3 / 30	Z3 / 30	Z3 / 30	Z3 / 30	Z3 / 30
PLUG WRAP		FU-POV 40 L	FU-POV 40 L	FU-POV 40 L	FU-POV 40 L	FU-POV 40 L
CIGARETTE TOTAL WEIGHT	mg/cig.	1005	980	980	990	1021
TOBACCO WEIGHT	mg/cig.	770	755	762	770	789
TOTAL RTD	mm WG	104	101	95	104	108
FILTER RTD	mm WG	76	62	61	59	68
DILUTION	%	10	6	11	10	11
COMPRESSIBILITY AT 12 % M	mm	3.22	3.37	3.32	3.32	3.69
FILLER DENSITY AT 12 % M	mg/ml	240	238	239	240	247
SMOKE						
TPM	mg/cig.	18.1	18.2	17.0	17.8	16.8
DPM	mg/cig.	16.6	16.4	15.7	16.2	15.4
SN	mg/cig.	1.33	1.31	1.19	1.24	1.20
TAR UK	mg/cig.	15.6	15.4	14.8	15.3	14.5
CO	mg/cig.	15.3	15.9	15.0	15.6	14.1
NO	mg/cig.	0.20	0.21	0.18	0.18	0.18
PUFF COUNT		8.9	8.3	8.3	8.4	8.7

ANF/cap/11.30.1981

1000143988

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

The overall evaluation of the prototypes described on the previous page proved to be positive, thus making prototype 23 the first accepted step toward the final one (Pan-European).

In parallel, TENNIS prototype 53 UK was developed at FTR, accepted by Panel D at equal preference against the MLK CH and this was later confirmed in Richmond.
To date, prototype 53 is regarded as the final step in the development of a diluted MARLBORO for the UK, incorporating a fully cased and flavoured cut-filler, conforming to the Hunter list.

Description of samples and results

By using the cut-filler derived from tobacco blend No GB0120804N02, batch No 958 and the Swiss MARLBORO construction, cigarette prototype 53 was produced.
For the making of the current MARLBORO UK, the production center in Silvertown was asked to supply FTR with the following materials :

1) 200 kg of standard cut-filler MLK-09 UK

2) 20 bobbins of cigarette paper Mauduit 110-6

3) 2 bobbins of tipping paper, code No 32-0165

At the same time, three boxes of flavoured filters UK were dispatched from PMB (Philip Morris Belgium) to FTR.

The design and the results of the above-mentioned prototypes are shown in the table on the next page.

00014989

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

PRODUCTION DATE		OCT. 1981 (FTR)	OCT. 1981 (FTR)	NOV. 1981 (FTR)
PROTOTYPE NO		MLK-09 (CURRENT)	53 T	REPEAT (53 T)
VERSION		A	A	A
CUT-FILLER				
TA	%	1.96	1.90	1.91
RS	%	9.5	8.8	7.1
$N\text{-}NO_3$	%	0.12	0.26	0.27
CIGARETTE FORMAT				
DIAMETER	mm	7.95	7.95	7.95
FILTER LENGTH	mm	20	20	20
CIGARETTE TOTAL LENGTH	mm	84.4	84.4	84.4
CIGARETTE				
FILTER TYPE		3.4 I / 46	3.4 I / 46	3.4 I / 46
CIGARETTE PAPER		MAUDUIT 110-6	WATTENS 60	WATTENS 60
TIPPING PAPER		NON POROUS	Z3 / 60	Z3 / 60
PLUG WRAP		NON POROUS	FU-POV 24 L	FU-POV 24 L
CIGARETTE TOTAL WEIGHT	mg/cig.	1010	1063	1074
TOBACCO WEIGHT	mg/cig.	779	841	853
TOTAL RTD	mm WG	114	109	113
FILTER RTD	mm WG	67	67	62
DILUTION	%	NONE	17	18
COMPRESSIBILITY AT 12 % M	mm	3.58	2.89	----
FILLER DENSITY AT 12 % M	mg/ml	243	259	264
SMOKE				
TPM	mg/cig.	18.0	17.2	17.8
DPM	mg/cig.	16.5	15.6	16.2
SN	mg/cig.	1.21	1.06	1.19
TAR UK	mg/cig.	15.6	14.9	15.3
CO	mg/cig.	16.2	15.0	15.4
NO	mg/cig.	0.16	0.25	0.29
PUFF COUNT		8.1	9.0	9.4

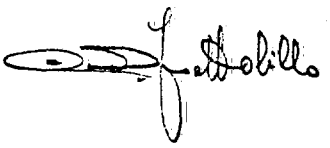
ANF/cap/11.30.1981

Ø0001439990

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000

Comments

The issue of Panel D's evaluation (September 14, 1981) conducted on prototype 53 (special USA flavour system) vs. the MLK CH showed prototype acceptance at equal preference as for the current MLK CH. It was then decided to market test in the UK the 53 against the current MLK UK and the 23 (MLB-03/PME) against the 53.
The required quantities of packed and coded cigarettes were dispatched to London on November 3, 1981.



ANF/cap/NOVEMBER 30, 1981

0000143991

Source: https://www.industrydocuments.ucsf.edu/docs/tzhk0000